

REMARKS/ARGUMENTS

On page 4 of the final Official Action, claims 29-34 were rejected under 35 U.S.C. 112, second paragraph, for being indefinite with respect to the terms “substantially equal” and “about one-half.” In reply, claims 29-34 have been amended to remove the words “substantially” and “about.” As discussed in the applicant’s previous Amendment in Response to Official Action, support for these amendments is found in paragraph [00034], lines 18-22 on page 13 of applicant’s specification, and in step 109 of applicant’s FIG. 7, as further described in applicant’s specification on page 16 lines 18-20.

On page 11 of the final Official Action, claims 29, 31-32, and 34 were indicated as allowable if rewritten to overcome the rejections under 35 U.S.C. 112, 2nd paragraph, and to include all of the limitations of the base claim and any intervening claim. In reply, claims 29 and 32 have been re-written in independent form to explicitly recite all of the limitations of their respective base claims 12 and 24 and any intervening claims, and claim 31 has been re-written to depend from claim 29, and claim 34 has been re-written to depend from claim 32.

The applicant’s claims are not anticipated by Smithson

On page 5 of the final Official Action, claim 6 was rejected under 35 U.S.C. 102(e) as being anticipated by Smithson et al. U.S. 6,802,012. Applicant respectfully traverses.

Anticipation is established only when a single prior art reference discloses, expressly or under the principles of inherency, each and every element of a claimed invention as well as disclosing structure which is capable of performing the recited functional limitations. RCA

Corp. v. Appl. Dig Data Sys., Inc., 730 F.2d 1440, 1444 (Fed. Cir. 1984); WL. Gore & Assocs., Inc. v. Garlock, Inc., 721 F.2d 1540, 1554 (Fed Cir. 1983). The elements must be arranged in the reference as in the claims under review, although this is not an ipsis verbis test. In re Bond, 910 F.2d 831, 15 U.S.P.Q.2d 1566, 1567 (Fed. Cir. 1990) (vacating and remanding Board holding of anticipation).

With respect to applicant's claim 6, Smithson does not show the recited claim elements "grouping the on-demand anti-virus scan requests into chunks, each of the chunks including multiple ones of the on-demand anti-virus scan requests, and placing the chunks onto the virus scan request queue." (Emphasis added.) Thus, applicant's claim 6 recites a "grouping" operation distinct from the "placing" operation, and what is placed by the "placing" operation are "the chunks" produced by the "grouping" operation. The placement of chunks of plural on-demand scan requests on the virus scan request queue, instead of individual on-demand scan requests, is shown in applicant's FIG. 7, steps 108, 109, and 110, as described in applicant's specification, page 16 lines 4-8 and 18-23.

Smithson discloses a method of operating a computer for on-demand anti-virus scanning and on-access virus scanning of computer files. (Smithson, Abstract.) On-demand anti-virus scan requests and on-access anti-virus scan requests are combined in a virus scan request queue. Smithson's virus scan request queue is called a "pending list" in step 18 of Smithson's FIG. 2. This "pending list" is shown in Smithson's FIG. 3 for the case of on-access requests rather than on-demand accesses. (Smithson, col. 5 lines 5-22.) The scan requests in the pending list, however, are not distributed to a plurality of virus checkers. Instead, the scan requests in the pending list are sequentially selected and serviced one at a time in step 24 of Smithson's FIG. 4.

(Smithson, col. 5, lines 23-30.) Therefore, at any given time that the Scan Engine 34 of Smithson's FIG. 5 is performing an anti-virus scan, either an on-demand anti-virus scan or an on-access anti-virus scan is being performed by the Scan Engine 34. (Smithson, col. 5, lines 46-54.)

With respect to claim 6, page 6 of the final Official Action says: "Figure 2 of Smithson teaches placing on-demand scan requests into a queue, Figure 3 shows the 'chunks'." However, Smithson does not disclose grouping on-demand scan requests into these chunks, and placing these chunks onto the virus scan request queue. Instead, Figure 2 of Smithson shows that one on-demand or on-access scan request is received in step 10 and then written to the virus scan request queue in step 18. Thus, individual scan requests and not chunks of plural scan requests are placed on the virus scan request queue of Smithson. See Smithson Col. 4 line 50 to Col. 5 line 5. Moreover, the "Time Requested" stamps in FIG. 3 are an indication that the plurality of requests shown in the virus scan request queue of FIG. 3 were placed onto the virus scan requests individually at different respective times.

Page 2 of the final Official Action says: "While Smithson does teaches individual requests, there is noting that precludes a plurality of individual requests being placed together (in particular if the requestor has priority)." (Emphasis added.) In reply, applicant respectfully points out that the test for inherency to satisfy anticipation is not whether a disclosed apparatus or process is precluded from being operated or carried out in a more specific way as claimed by applicant. Instead, to show inherency to satisfy anticipation, the disclosed apparatus or process must necessarily perform in the specific way as claimed by applicant.

In order to be inherent, the nondisclosed element must be inevitable. In other words, it is not sufficient if the element is sometimes present and sometimes absent; it must be inevitably present. See, for example, Tyler Refrigeration v. Kysor Indus. Corp., 777 F.2d 687, 689, 227 U.S.P.Q. 845, 846-47 (Fed. Cir. 1985)(it is inherent that a claimed embodiment of a reference patent maintains an air curtain during a defrost cycle; the judge decided differently from the PTO with due consideration of the presumption of validity); W.L. Gore & Associates, Inc. v. Garlock, Inc., 721 F.2d 1540, 1548, 220 U.S.P.Q. 303, 309 (Fed. Cir. 1983), cert. denied sub nom., 469 U.S. 851 (1984), 105 S. Ct. 172 (1984)(process was inherently carried out by operation of a machine, and it was irrelevant that persons using the machine did not appreciate the results). See also MPEP 2112.02 (“Under the principles of inherency, if a prior art device, in its normal and usual operation, would necessarily perform the method claimed, then the method claimed will be considered to be anticipated by the prior art device.”)

In short, it is not sufficient to simply consider multiple on-demand requests that happen to be on the queue of Smithson as a chunk. The fact that multiple requests of the same type or priority might be found together on Smithson’s queue at any given time does not necessarily imply that these multiple requests were processed in the specific fashion recited in applicant’s claim 6 by “grouping the on-demand anti-virus scan requests into chunks, each of the chunks including multiple ones of the on-demand anti-virus scan requests, and placing the chunks onto the virus scan request queue.” (Emphasis added.) For the same reasons, McAfee also does not disclose “grouping the on-demand anti-virus scan requests into chunks, each of the chunks including multiple ones of the on-demand anti-virus scan requests, and placing the chunks onto the virus scan request queue.” (Emphasis added.)

The applicant's claims are not anticipated by McAfee

On pages 6-8 of the final Official Action, applicant's claims 11-15 and 22-28 were rejected under 35 U.S.C. 102(e) as being anticipated by McAfee ("GroupShield and the Microsoft Virus Scanning API"). Applicant respectfully traverses.

McAfee describes a virus scanning API 2.0 said to have been released as an upgrade to Microsoft Exchange 2000 in Service Pack 1 to provide a number of enhancements including priority based queuing, multithreaded queue processing, and enhanced background scanning. As a client attempts to gain access to an Exchange item in the Exchange Server, a comparison is made to ensure that the message body and attachment (if present) has been scanned by the current virus signature file. If the content has not been scanned by the current virus signature file, then the corresponding item is submitted to GroupShield for scanning before that item is released to the client. In virus scanning API 2.0, a single queue processes all of the message body and attachment data. On-access requests are submitted as high-priority items. This queue is now serviced by a series of threads (the default number of threads is $2 * \text{number_of_processors} + 1$), with high-priority items always taking precedence. (McAfee, page 3.) Virus scanning API 2.0 also includes on-demand proactive scanning of messages. Items are submitted to a common information store queue as they are submitted to the information store. Each of these items receives a low priority in the queue, so that these items do not interfere with the scanning of the high-priority items. When all of the high-priority items have been scanned, virus scanning API 2.0 begins to scan low-priority items. The priority of items is dynamically upgraded to high priority if a client attempts to access the item when the item is in the low-priority queue. A

maximum of 30 items can exist at one time in the low priority queue, which is determined on a first in, first out basis. (McAfee, page 4.)

With respect to “chunks” in McAfee, page 7 of the final Official Action says: “Page 3 [of McAfee] shows on-access scan requests being placed within ‘chunks’ of on-demand scan requests.” Applicant respectfully disagrees. Page 3 of McAfee shows (under the heading “Global Scanning Queue”) a first box in which “Unscanned items are all placed in the queue with the same priority.”; a second box in which “However, if a user accesses an item, it attains a high priority and jumps to the front of the queue.”; and a third box in which “If a user saves an item to a folder, it is given a low priority.” (Page 4 further explains that the on-demand requests with the same low priority are maintained as a first-in first-out queue.) Therefore, in applicant’s view, the first box on page 3 of McAfee shows the low-priority queue of on-demand scan requests in the Global scanning queue, and the second box shows a scan request being moved from the low-priority queue to the front of the Global Scanning Queue when the scan request is promoted from an on-demand scan request to an on-access scan request. Applicant does not see “grouping the on-demand anti-virus scan requests into chunks, each of the chunks including multiple ones of the on-demand anti-virus scan requests, and placing the chunks onto the virus scan request queue” (emphasis added) as recited in applicant’s claim 6.

Applicant also does not see where McAfee discloses “inhibiting the distribution of multiple ones of the on-demand anti-virus scan requests from at least one of the chunks to the virus checkers until completion of anti-virus scanning for the anti-virus scan requests in a prior one of the chunks” as recited in applicant’s claim 11. Instead, in McAfee, if an on-demand request is next in line in McAfee’s Global Scanning Queue and a scanner thread has just finished

using a processor to satisfy an anti-virus scan request, the scanner thread would then begin scanning the on-demand request that is next in line in McAfee's Global Scanning Queue.

Applicant also does not see where McAfee discloses "grouping the on-demand anti-virus scan requests into chunks, each of the chunks including multiple ones of the on-demand anti-virus scan requests, and for each chunk, checking whether the number of anti-virus scan requests on the virus checking queue is less than a threshold, and upon finding that the number of anti-virus scan requests on the virus checking queue is less than the threshold, placing said each chunk on the virus scan request queue" as recited in applicant's claim 12. Instead, in the proactive scanning of McAfee, when an item is submitted to the information store, an on-demand scan request of the item is placed on the low-priority queue so long as the queue is not full (a maximum of 30 items can exist at one time in the low-priority queue). If an on-demand scan request of the item is not placed on the low-priority queue when an item is submitted to the information store because the queue is full at that time, the item still could be scanned later as a result of background scanning or on-access scanning. In short, in McAfee, individual scan requests and not chunks of plural scan requests are placed on the queue so long as the queue is not full.

Applicant also does not see where McAfee discloses "inhibiting the placement of at least one of the chunks onto the virus scan request queue until completion of anti-virus scanning for the anti-virus scan requests in a prior one of the chunks" as recited in applicant's claims 7 and 15. Applicant respectfully submits that it is unreasonable to interpret "inhibiting the placement of at least one of the chunks onto the virus scan request queue until completion of anti-virus scanning for the anti-virus scan requests in a prior one of the chunks" as simply not placing an

individual on-demand scan request on the queue of McAfee if the queue is full. For example, if the low-priority queue of McAfee contains a plurality of scan requests and this plurality of scan requests is considered a chunk, then in McAfee there is no inhibiting placement of a new on-demand scan request on the low-priority queue of McAfee until the low-priority queue is empty. Instead, so long as the queue is not full, a new on-demand scan request would be placed on the queue of McAfee.

Moreover, the definition of “inhibit” as “limit, block, or decrease the action or function of” as given on page 3 of the final Official Action is of no consequence because this definition provides no justification for ignoring the claim limitation of “until completion of anti-virus scanning for the anti-virus scan requests in a prior one of the chunks.” The limitation of “until completion of anti-virus scanning for the anti-virus scan requests in a prior one of the chunks” is different from the queue being full or not.

Applicant does not see the chunking feature of applicant’s claim 22 in McAfee for the same reasons discussed above with respect to claim 6.

Applicant does not see the chunk placement inhibiting feature of applicant’s claim 23 in McAfee for the same reasons discussed above with respect to applicant’s claim 7.

Applicant does not see the chunking feature of applicant’s claim 24 in McAfee for the same reasons as discussed above with respect to applicant’s claim 6.

Applicant does not see the chunk placement threshold feature of applicant’s claim 27 in McAfee for the same reasons as discussed above with respect to applicant’s claim 12. Placing a chunk of plural on-demand scan requests on a virus scan request queue upon finding that the number of anti-virus scan requests on the virus checking queue is less than a threshold is

different from placing an individual on-demand scan request on the queue upon finding that the queue is not full.

Applicant does not see the chunk placement inhibiting feature of applicant's claim 28 in McAfee for the same reasons as discussed above with respect to applicant's claim 7.

Claims 7, 12, and 24 are patentable over Smithson in view of McAfee

On pages 9-10 of the Official Action, claims 7, 12, and 24 were rejected under 35 U.S.C. 103(a) as being unpatentable over Smithson in view of McAfee. Applicant respectfully traverses.

Applicant's dependent claim 7 further recites "inhibiting the placement of at least one of the chunks onto the virus scan request queue until completion of anti-virus scanning for the anti-virus scan requests in a prior one of the chunks." As discussed above, Smithson and McAfee place individual scan requests on a virus scan request queue, instead of "grouping the on-demand anti-virus scan requests into chunks, each of the chunks including multiple ones of the on-demand anti-virus scan requests, and placing the chunks onto the virus scan request queue." In addition, inhibiting the placement of an individual scan request upon a virus scan request queue when the queue is full is different from "inhibiting the placement of at least one of the chunks onto the virus scan request queue until completion of anti-virus scanning for the anti-virus scan requests in a prior one of the chunks." Inhibiting the placement of a chunk upon the queue is different from inhibiting the placement of an individual scan request upon the queue, and the condition of the queue being full or not is different from the condition of completion of anti-virus scanning for the anti-virus scan requests in a prior one of the chunks.

Applicant's claim 12 recites, among other things, "grouping the on-demand anti-virus scan requests into chunks, each of the chunks including multiple ones of the on-demand anti-virus scan requests, and for each chunk, checking whether the number of anti-virus scan requests on the virus checking queue is less than a threshold, and upon finding that the number of anti-virus scan requests on the virus checking queue is less than the threshold, placing said each chunk on the virus scan request queue." Thus, claim 12 is distinguished from Smithson and McAfee as discussed above because neither Smithson nor McAfee discloses "grouping the on-demand anti-virus scan requests into chunks, each of the chunks including multiple ones of the on-demand anti-virus scan requests, and ... placing said each chunk on the virus scan request queue." (Emphasis added.) In addition, neither Smithson nor McAfee discloses "for each chunk, checking whether the number of anti-virus scan requests on the virus checking queue is less than a threshold, and upon finding that the number of anti-virus scan requests on the virus checking queue is less than the threshold, placing said each chunk on the virus scan request queue" (emphasis added) because, as discussed above, inhibiting the placement of a chunk upon the queue is different from inhibiting the placement of an individual scan request upon the queue.

Applicant's claim 24 recites, among other things, "for grouping the on-demand anti-virus scan requests into chunks, each of the chunks including multiple ones of the on-demand anti-virus scan requests, and for consecutively placing the chunks onto the virus scan request queue." Thus, claim 24 is distinguished from Smithson and McAfee as discussed above because neither Smithson nor McAfee discloses "grouping the on-demand anti-virus scan requests into chunks, each of the chunks including multiple ones of the on-demand anti-virus scan requests, and ... placing the chunks onto the virus scan request queue." (Emphasis added.)

Claims 30 and 33 are patentable over McAfee in view of Edwards

On pages 10-11 of the final Official Action, claims 30 and 33 were rejected under 35 U.S.C. 103(a) as being unpatentable over McAfee in view of Edwards (U.S. 7,188,367). Applicant respectfully traverses. Edwards is cited for placing scan requests in a priority queue based on “optimal virus scanner throughput” (See Column 8 lines 5-21) and for teaching a threshold (Column 5, lines 65-67, Column 5, lines 1-6.) However, Edwards does not disclose the limitations of the base claims 12 and 27 that are missing from McAfee, as discussed above. As shown in Edwards FIG. 3, step 350, Edwards also places an individual scan request in a priority queue. (For example, compare Edwards FIG. 3 to Smithson FIG. 2.) In addition, the threshold of Edwards, Column 5, lines 65-67, and Column 5, lines 1-6, relates to “using the scan request’s user characteristics, a pending scan request from user A may be determined to be more suitable than a pending scan request from user B if three of the four scanner threads are already scanning scan requests from user B.” It is respectfully submitted that improper hindsight would be required for the scan request threshold of Edwards to provide sufficient motivation for arriving at the applicant’s chunk threshold of one-half of the chunk size for placing a chunk on the virus scan queue.

When determining whether a claim is obvious, an examiner must make “a searching comparison of the claimed invention – including all its limitations – with the teaching of the prior art.” In re Ochiai, 71 F.3d 1565, 1572 (Fed. Cir. 1995) (emphasis added). Thus, “obviousness requires a suggestion of all limitations in a claim.” CFMT, Inc. v. Yieldup Intern. Corp., 349 F.3d 1333, 1342 (Fed. Cir. 2003) (citing In re Royka, 490 F.2d 981, 985 (CCPA 1974)). Moreover, as the Supreme Court stated, “there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” KSR Int’l v. Teleflex Inc., 127 S. Ct. 1727, 1741 (2007) (quoting In re Kahn, 441 F.3d 977, 988 (Fed. Cir. 2006) (emphasis added)). A fact finder should be aware of the distortion caused by hindsight bias and must be cautious of arguments reliant upon ex post reasoning. See Id., 127 S. Ct. at 1742, citing Graham, 383 U. S. at 36 (warning against a “temptation to read into the prior art the teachings of the invention in issue” and instructing courts to “guard against slipping into the use of hindsight.”).

The problem that the inventor is trying to solve must be considered in determining whether or not the invention would have been obvious. The invention as a whole embraces the structure, properties and problems it solves. In re Wright, 848 F.2d 1216, 1219, 6 U.S.P.Q.2d 1959, 1961 (Fed. Cir. 1988). Neither Smithson nor McAfee recognizes that there is a problem with servicing a virus scan request queue that could be or should be solved by the applicant’s chunk placement feature or applicant’s chunk placement inhibiting feature. As discussed above, by managing on-demand virus scan requests in chunks of plural on-demand requests, the applicant’s invention can keep multiple virus checkers busy scanning files in a file system without substantially reducing the availability of the virus checkers for on-access virus checking. This novel advantage of applicant’s invention is objective evidence of non-obviousness.

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In view of the above, it is respectfully submitted that the application is in condition for allowance. Reconsideration and early allowance are earnestly solicited.

Respectfully submitted,

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